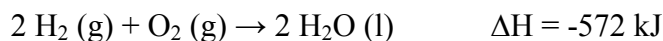


Name _____

AP Chemistry

Enthalpy & Bond Energies

- 1) Consider the following reaction:



- (a) How much heat is evolved for the production of 1.00 mol of $\text{H}_2\text{O} (\text{l})$?
- (b) How much heat is evolved when 4.03 g of hydrogen is reacted with excess oxygen?
- (c) How much heat is evolved when 186 g of oxygen is reacted with excess hydrogen?

- 2) The complete combustion of acetic acid, CH_3COOH , to form water and carbon dioxide at constant pressure releases 871.7 kJ of heat per mole of CH_3COOH .

- (a) Write the balanced equation for this reaction, including the enthalpy.
- (b) Draw an enthalpy diagram for this reaction.

- 3) Using the bond enthalpy table, estimate ΔH for each of the following reactions:

- (a) $2 \text{CH}_4 (\text{g}) + \text{O}_2 (\text{g}) \rightarrow 2 \text{CH}_3\text{OH} (\text{g})$
- (b) $\text{H}_2 (\text{g}) + \text{Br}_2 (\text{g}) \rightarrow 2 \text{HBr} (\text{g})$
- (c) $2 \text{H}_2\text{O}_2 (\text{g}) \rightarrow 2 \text{H}_2\text{O} (\text{g}) + \text{O}_2 (\text{g})$